

IN THE SPECIFICATION:

Please amend the paragraph beginning at line 22, page 3, as follows:

In a first embodiment of the invention the laser light may be obscured by a shadow mask. A shadow mask is a means whereby a portion of laser light incident upon the mask is substantially ~~adsorbed~~ absorbed by the mask or at least prevent the light from impinging upon the surface location. The shadow mask may ~~adsorb~~ absorb all of a low power density portion of a laser beam.

Please amend the paragraph beginning at line 18, page 4, as follows:

Effectively, the method and apparatus according to the present invention may prevent laser light, which is below a threshold power density for causing scabbling to be incident alone on a surface to be treated. Thus, such low power density laser light may be either ~~adsorbed~~ absorbed before reaching the surface; intensified by reflection to combine with another low power density portion of the laser beam to form a portion which is above a threshold level to cause scabbling; or redirected by reflection to combine with a portion of the laser beam which is already above a threshold to cause scabbling.

Please amend the paragraph beginning at line 1, page 8,  
as follows:

Use of the method of the invention may comprise the steps  
of irradiating a surface, adjusting a mask aperture size to  
~~adsorb~~ absorb a part of the laser beam below a threshold power  
density for scabbling and irradiating a surface to cause  
scabbling.

Please amend the paragraph beginning at line 25, page 8,  
as follows:

Masks for use in the invention may be coated. The  
coating may be partial. Coatings may include coatings to  
~~adsorb~~ absorb laser light so as to for a shadow mask part and  
coatings to reflect laser light so as to form a reflective  
mask part.

Please amend the paragraph beginning at line 1, page 12,  
as follows:

The presence of radionuclides may affect the nature of  
the scabbling process and the ~~adsorption~~ absorption of  
incident last radiation.

Please amend the paragraph beginning at line 4, page 16,  
as follows:

Figure 4 shows a schematic representation of an apparatus 200 of the invention. Laser light from a laser source is brought to a focus 106 at which point the light leaves the protective shroud 108 and begins to diverge. As the light diverges it impinges upon a shadow mask 202 comprising a hollow cylinder through which the laser light 204 partially passes. The laser light 204 impinges upon the mask and is partly ~~adsorbed~~ absorbed and hence a part of the divergent beam 208 which would otherwise impinge upon the surface 114 does not impinge. This part of the beam is a part that is below a threshold power density for scabbling and would therefore not scabble surface 114 in annular region 214. Another part 206 of the laser light 204 does not impinge upon the shadow mask 202 and passes through a central aperture 210 in the shadow mask and so that this part 206 of the laser light 204 impinges upon the surface 114. The part of the laser light which passes through the mask is all of a power density greater than a threshold power density for causing scabbling and thus the surface 114 is scabbled in a circular region 212 or surface 114.

Please amend the paragraph beginning at line 8, page 17, as follows:

Figure 5 shows a schematic representation of a shadow mask 202 of a first embodiment of the invention. The shadow

mask comprises a hollow cylinder 216. Incoming, divergent, laser light in direction D may be obscured by the end wall 250 of the cylinder or the cylinder bore 252. In the example, the cylinder is elongate and is composed of a mass around a kilogram of aluminium metal, optionally with a black coating, for use with a laser of 4kw intensity. However, the cylinder may be composed of any suitable metal. The diameter of the bore of the cylinder is 7cm with wall thickness of 1cm. The shadow mask may be attached to the apparatus by brackets, stays or other means (not shown). The physical mass of the shadow mask enables a relatively high energy to be ~~adsorbed~~ absorbed from the incoming laser light before any thermal degradation of the mask occurs. In addition the shadow mask is preferentially robust so as to withstand the impact of any debris from the scabbling process.

Please amend the paragraph beginning at line 4, page 18, as follows:

Figure 6 shows a schematic representation of the effect of a shadow mask of a first aspect of the invention as depicted in Figure 4 upon a schematic representation of radiation power density across a laser beam as depicted in Figure 1. Figure 6 depicts a graph 272 with a y axis of radiation power density (I) and an x axis of distance (d) across the beam. The curve 274 describes the power density

profile of laser light after passing through a shadow mask 202 of the invention. Central portion 276, a portion of power density above a threshold power density 18 for causing scabbling is unaffected by passing through the aperture 202 of the shadow mask of Figure 5. However, low power density light, below the threshold power density for causing scabbling is ~~adsorbed~~ absorbed by the mask 202 and cannot, therefore, impinge upon the surface to be scabbled. The low power density light is no longer present as it has been obscured by the shadow mask,. The width of the beam A after passing the mask is substantially the same as the aperture A of the mask on the side of the mask away form the laser source.

Please amend the paragraph beginning at line 6, page 19, as follows:

Figure 7 shows a schematic representation 300 of a further embodiment of the invention involving the use of a reflective mask. Laser light from a laser source comes to a focus 106 and exits the protective shroud 108. ~~[[the]]~~ The light then diverges before impinging upon the reflective mask 302. A part of the divergent laser light 204 no longer continues on in a region 308 that it would otherwise occupy and similarly fails to impinge upon, is obscured from, the surface to be scabbled in annular region 312. This part of the laser light which no longer continues is a lower energy

portion of the laser light below a threshold power level density for causing scabbling. The surface 114 is no longer potentially modified in region 314 such that scabbling by laser light of power density above the threshold power density for scabbling may not give rise to scabbling of the surface 114. However, the part of the laser light which would form annular region 314 is reflected by the internal surface of the mask 302 to a central region of the incident laser beam 306 and impinges upon the surface of to be scabbled in region 312. Some laser energy may be ~~adsorbed~~ absorbed by the mask 302, but however most of the energy which would otherwise have impinged on annular region 314 is reflected so as to fall on the region 312. Another part of the laser light already above a threshold power density for scabbling passes through the aperture 310 of the reflective mask and impinges upon and scabbles the surface 114 in circular region 312.

Please amend the paragraph beginning at line 14, page 20, as follows:

As significant benefit of this aspect of the invention is that low power density laser light is no longer lost or wasted by ~~adsorption~~ absorption but is substantially reflected and reinforces the laser light capable of causing scabbling thus increasing the efficiency of the apparatus and providing a more effective method of scabbling a surface.

Please amend the paragraph beginning at line 21, page 20, as follows:

In the example, the reflective mask 302 comprises a hollow cylinder and is composed of a mass of around a kilogram of aluminium metal for use with a laser of 4kw intensity. The diameter of the bore of the cylinder is 7cm with wall thickness 1cm. The bore of the reflective mask is polished to improve reflectivity. The reflective mask may be attached to the apparatus by brackets, stays or other means (not shown). The physical mass of the shadow mask enables energy to be ~~adsorbed~~ absorbed from the incoming laser light before any thermal degradation of the mask occurs. In addition the reflective mask is sufficiently robust so as to withstand the impact of any debris from the scabbling process. The end face 350 of the reflective mask 350 adjacent to the laser source may be made ~~adsorbent~~ absorbent to laser light to avoid reflection of laser light back at the apparatus. Alternatively, the reflective mask may be made of polished stainless steel or any other suitable materials such as a cylindrical mirror, for example.